

CLAIMS

What is claimed is:

1. A wireless digital CDMA communication system, including a base station and at least one subscriber unit, for supporting a plurality of communication rates by using a plurality of communication channels between a base station and a subscriber unit, the system comprising:

at least one base station comprising:

first means for processing a first communication for transmitting to said at least one subscriber unit, including first means for determining a first data rate required to support said first communication;

means for allocating a sufficient number of communication channels for transmission to said at least one subscriber unit at said first data rate, said allocating means being responsive to said first determining means; and

means for monitoring said first determining means and dynamically adding or tearing down communication channels to change the number of allocated communication channels; and

at least one subscriber unit comprising:

means for receiving said first communication having said first data rate;

second means for processing a second communication for transmitting to said base station including second means for determining a second data rate required to support said second communication;

means for allocating a sufficient number of communication channels for transmission to said at least one base station at said second data rate, said second allocating means being responsive to said second determining means; and

means for monitoring said second determining means and dynamically adding or tearing down communication channels to change the number of allocated communication channels; wherein said second data communication rate is higher than said first data

communication rate, and whereby said base station has means for receiving said second communication having said second data rate.

2. A wireless digital code division multiple access (CDMA) system as in claim 1 wherein said establishing means establishes D channels at a first data rate and B channels at a second data rate which is greater than said first data rate.

3. A wireless digital code division multiple access (CDMA) system as in claim 1 wherein said first data rate is 16 kb/s and said second data rate is 64 kb/s.

4. A wireless digital code division multiple access (CDMA) system as in claim 1 wherein a set of assigned channel codes are assigned for the determining the data rate, the allocating means allocates channels, and adding and tearing down allocated channels.

5. A wireless digital code division multiple access (CDMA) as in claim 4 wherein:

said subscriber unit further includes:

means for monitoring a return communication and determining a desired return data rate;

means for allocating a sufficient number of channels for the return communication based on desired the return data rate such that the total data rate of the allocated return channels is at least equal to the desired return data rate and is not greater than the desired return data rate plus a predetermined rate; and

means for transmitting the return communication within said allocated return channels; and

said base station includes means for receiving the return communication within said allocated return channels.

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6. A wireless digital code division multiple access (CDMA) system as in claim 5 wherein said first data rate is 16 kb/s and said second data rate is 64 kb/s.

7. A wireless digital code division multiple access (CDMA) system as in claim 5 wherein the communication and return communication are an ISDN communication; each said allocating means allocates a single D channel and a sufficient number of B channels; and said predetermined rates are equal to said second data rate.

8. A wireless digital code division multiple access (CDMA) as in claim 4 wherein said base station is a base station which further comprises:

a physical layer generating CDMA codes, synchronizing between said base station and subscriber units, providing bearers, spreading and transmitting bits on a CDMA code, measuring received signal strength to permit automatic power control, and generating transmission of pilot signals;

a medium access control (MAC) layer encoding and decoding for forward error correcting, assigning CDMA codes, encrypting and decrypting communication signals, encrypting and error-correcting to the bearers provided by the physical layer, framing, error checking and discriminating medium access control peer to peer messages and data, linking control frames, and processing automatic control information; and

a data link control layer providing an error-free link among the layers, wherein the data link control layer initiates changes in the allocation of channels based on determining the minimum desired data rate for communications channels via physical layer.

9. A method used in a CDMA system for allocating bandwidth and dynamically switching between different bandwidths between a base station and at least a subscriber unit comprising:

a) establishing transmission at an initial data rate using at least one channel;

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- b) continuously monitoring and maintaining said communication and determining an adjusted data rate desired for support of said communication; and
- c) allocating a sufficient number of channels for the communication based on the adjusted data rate.

10. A method according to claim 9 wherein steps b and c are repeated during transmission of said communication to determine new adjusted data rates and new allocations of channels during said communication.

11. A method according to claim 9 wherein said communication channels includes establishes D channels at a first data rate and B channels at a second data rate which is greater than said first data rate and said allocating includes the allocation of a single D channel and a sufficient number of B channels using said second data rate as said predetermined rate.

12. A method according to claim 10 wherein said communication station establishes D channels at a data rate of 16 kb/s and said B channels at a data rate of 64 kb/s.

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